REMARKS

Claims 1-2, 9-10, 15-16, 18-21, and 23-36 are pending.

One embodiment of the invention is directed to a method of processing video data to detect field characteristics of the data, and in particular, to detect whether a field is progressive or interlaced. The method includes calculating first and second difference values as differences between pixels of a current field and pixels of a previous field and differences between the pixels of the current field and pixels of a subsequent field, respectively. In contrast to prior art methods, the method determines whether the current field is an interlaced field or a progressive field with respect to the subsequent field based on the first and second difference values.

Claims 1-2, 9-10, 26-27, and 29-30 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,452,011 to Martin et al. ("Martin") in view of U.S. Patent No. 5,561,477 to Polit.

The applicants appreciate the Examiner's detailed remarks in response to the arguments made in the Amendment filed on May 7, 2007. The applicants respectfully disagree with the Examiner. Although the following remarks are directed primarily to the Examiner's remarks, the applicants continue to agree with all of the arguments made in the May 7 Amendment.

The applicants' disagree with the Examiner's assertion that Polit suggests using his ratio calculations for progressive/interlace signal detection in addition to fading detection. In fact, the applicants submit that Polit does exactly the opposite of the Examiner's assertion. Rather that making a progressive/interlaced determination based on a ratio calculation, Polit changes a ratio calculation based on a pre-existing progressive/interlaced determination. In particular, col. 4, line 60 – col. 5, line 14 explain how the difference and ratio calculations are changed for interlaced frames compared to non-interlaced frames. In order to know which difference and ratio calculations to make, Polit's system must somehow first be given information as to whether the input image is interlaced or non-interlaced. Polit never mentions how to obtain such information, but clearly assumes the information is available before any ratio calculation is made. That is the opposite of making a ratio calculation and using the completed ratio calculation to then determine whether a field is interlaced or progressive. Accordingly, the

applicants continue to submit that Polit does not suggest "determining whether said first field is an interlaced field or a progressive field with respect to said third field based on said steps of calculating" as recited in claim 1.

The applicants continue to disagree with the Examiner's assertion that Polit teaches calculating the ratio between such difference values in order to get a more accurate measurement of characteristics in a video sequence. Although the applicants agree that fading is a single characteristic of an image, it is only one characteristic and the Polit's ratio is not used to measure any other characteristics. Also, Polit does not state or imply that Polit's ratio calculations get a more accurate measurement of fading. Polit's method of fading determination might simply be a faster or easier way to measure fading.

The important thing is that Polit does not suggest using the ratio calculations for measuring any other characteristics. Instead, Polit suggests that other calculations could be employed to help measure fading. In particular, the Examiner points to col. 5, lines 30-43, but those lines clearly give an example of calculating differences between corresponding segments and using those calculated differences to determine fading. At col. 5, lines 39-42 Polit states, "The difference (in contrast to the absolute differernce) between corresponding co-located pixels in adjacent similar parity odd or even fields can also be used in the fading detection operation."

The applicants disagree with the Examiner's assertion that Polit suggest "verfying a scene change has occurred before performing said calculating steps." In particular, the applicants disagree that "a scene change verification would have been executed as a part of the detelecine operation …." A detelecine operation does not inherently verify whether a scene change has occurred. Instead, a detelecine operation is simply an inverse telecine process that removes frames to convert a telecined video signal (25 frames per second for PAL or 30 frames per second for NTSC) to a video signal having 24 frames per second. It simply does not involve any scene change detection. If the Examiner continues to assert that "a scene change verification would have been executed as part of the detelecine operation," the applicants respectfully request the Examiner to provide some support for such an assertion.

The applicants also disagree with the Examiner's assertion that Roeder teaches calculating pixel differences between a pixel of a first field and two pixels of a second field. The

3

applicants submit that the Examiner is mistakenly assuming that the numbers in the circles of Fig. 1D are pixel identifiers and that the groups 39, 40, 41, and 42 indicate that pixel differences are taken between the circled pixels. That is not correct. Each circled number in Fig. 1D is an inter-frame pixel difference, that is, the difference between a pixel in one frame and the pixel at the same location in another frame (see col. 2, lines 61-62). The groups 39, 40, 41, and 42 are simply sub-arrays of already-computed pixel differences that only indicate which pixel differences are taken into account in determining whether there is image motion with respect to the central pixel (the pixel indicated by the pixel difference 13 in Fig. 1D).

Roeder never suggests calculating differences between the circled pixel difference values. Instead, as indicated at col. 2, lines 63-67, each pixel difference is compared to a threshold value, assigned a logic one if the pixel difference exceeds the threshold value, and assigned a logic zero if the pixel difference does not exceed the threshold value. If all of the logic values for the sub-arrays 39-42 of pixel differences are logic one, then a motion indicative signal is generated for the central pixel difference 13 (col. 3, lines 36-39). Thus, there simply is no calculation of pixel differences between a pixel of a first field and two pixels of a second field.

The applicants disagree with the Examiner's assertion that Roeder suggests selecting the smaller of the two pixel differences discussed above. As discussed above, Roeder simply selects a logic zero or a logic one for a <u>single</u> pixel difference rather than selecting the smaller of two pixel differences.

Lastly, applicants note that the Examiner did not respond to the arguments presented with respect to claim 25. Accordingly, the arguments are repeated below and the Examiner is request to indicate where or how Roeder counts the number of moving pixels and compares the moving pixel count to a threshold.

\*\*\*

The cited references do not teach or suggest any of the features of claim 25. Claim 25 recites calculating the number of moving pixels between said second and third fields, wherein the determining step includes determining that said first field is an interlaced field if said number is lower than a moving pixel threshold, and determining that said first and third fields are

progressive if said number is not lower than the moving pixel threshold. As with claim 15, the Examiner admits that Martin and Polit do not teach the recited elements of claim 25, but mistakenly asserts that Roeder supplies the missing teaching.

Martin, Polit, and Roeder do not teach or suggest the claimed invention because Roeder does not supply the teachings of the elements of claim 25 that are missing from Martin and Polit. Figures 5-8 of Roeder show various embodiments of logic circuits that can be used to detect motion, but none of the embodiments count moving pixels and compare the moving pixel count to a threshold. Figures 5-6 involve logically ANDing various combinations of binary pixel differences (see col. 2, lines 62-68 for conversion of pixel differences to binary values) and logically Oring the outputs of the AND gates (110-116 or 120-126). Figures 7 and 8 are logic circuits that provide various combinations of pixel difference sign values and magnitude values. None of the logic gates of Figures 5-8 would provide a count value of the number of moving pixels or compare a count value to a threshold. For example, the AND gate 110 determines whether all of the magnitude inputs 13, 14, 18, 19 are logical ones, but those magnitude inputs are not indications of moving pixels, so the output of the AND gate 110 is not anything representing a count of moving pixels.

For the foregoing reasons, claim 25 is not rendered obvious by the cited prior art.

\*\*\*

For the foregoing reasons and the reasons presented in the May 7 Amendment, all of the pending claims are allowable over the cited references.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable.

Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC


/Robert Iannucci/
Robert Iannucci
Registration No. 33,514


701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900
Fax: (206) 682-6031

1029339_1.DOC